How Experience Improves Lacrosse Statistics

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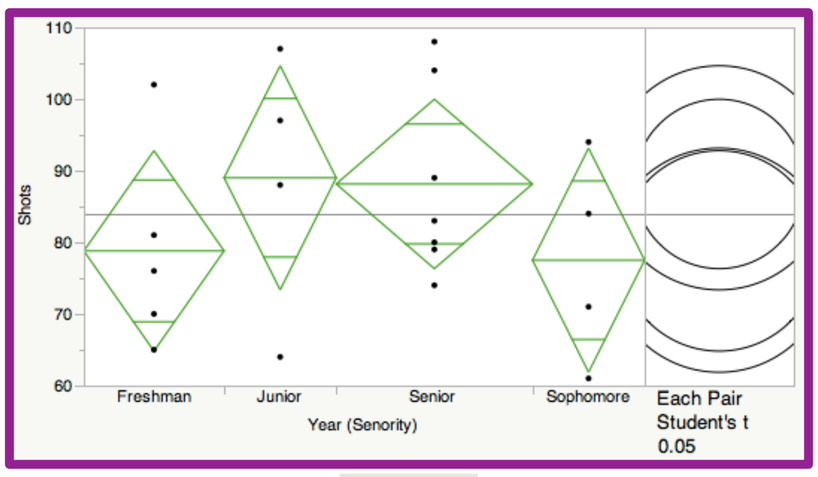
Background:

Lacrosse is a sport that has grown tremendously world wide. It is one of the fastest growing sports in the United States. Since lacrosse is still fairly new, many athletes do not have several years of experience before entering lacrosse at a collegiate level. The competition level from high school to college in women's lacrosse is enormous. The longer an athlete plays at a collegiate level, meaning they complete all four eligibility years, the more you will see their statistics excel.

Hypothesis:

With the data I have gathered from the ECC website on women's lacrosse statistics at the collegiate level, I hypothesize that an athlete that completes all four years of eligibility will have better statistics than an athlete that doesn't have many years of experience. I hypothesize that the more experience you have as a player, the more shots you will take. I hypothesize that seniority will indeed affect the total number of goals a player will have at the end of the season. I hypothesize that upperclassmen will start more games over underclassman. Lastly, I hypothesize that seniors will be make the deans list more than freshman.

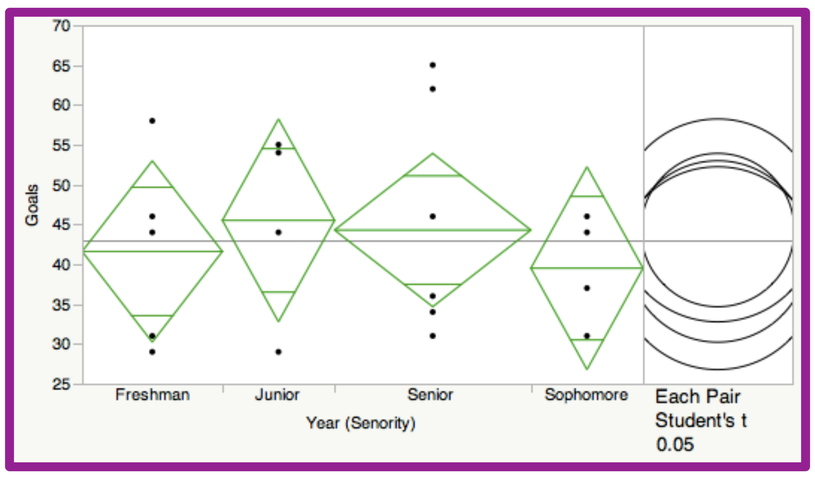
Results:



	Mean
Freshman	78.8000
Junior	89.0000
Senior	88.1429
Sophomore	77.5000

p-Value
0.2868

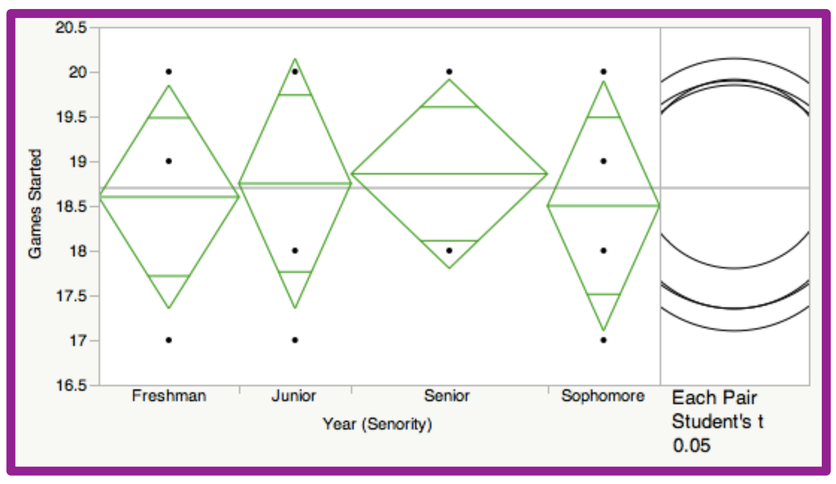
Figure 1 displays the mean amount of shots taken vs. the year of the player. The analysis demonstrates that the hypothesis appears to be true because upperclassman have more experience with shooting therefore they tend to be more comfortable with shooting and figuring out "their shot."



	Mean
Freshman	41.6000
Junior	45.5000
Senior	44.2857
Sophomore	39.5000

p-Value
0.4901

Figure 2 displays the total number of goals vs. the year of the player. The analysis demonstrates to be true. Again, players with more experience tend to feel more comfortable taking shots on goal than players who have had less experience on the field.



	Mean
Freshman	18.6000
Junior	18.7500
Senior	18.8571
Sophomore	18.5000

p-Value
0.6713

Figure 3 displays the mean games started vs. the year of the player. The analysis demonstrates that the hypothesis appears to be untrue. According to the data, the year of the player does not affect who will start each game. This is reasonable because some underclassman are just as good at their field positions than upperclassman so the coach will start the better player of that position.

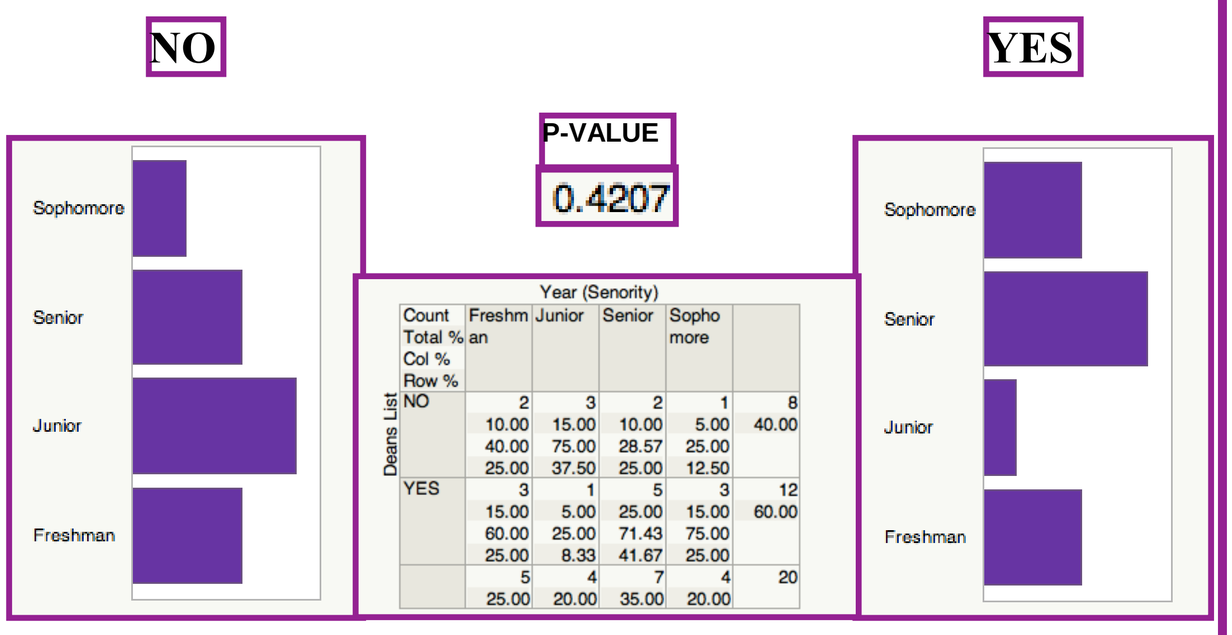


Figure 4 displays the year of the player and if they made the deans list. This analysis demonstrates that seniors tend to be on the deans list more than freshman because freshman are usually still adjusting to being new to college.

Methods of Analysis:

To analyze each sample of data, a distribution table was applied to determine the standard deviation and mean for goals scored, assists, games started, and total points. To further these analyzes, the players academic year (freshman,sophomore,junior,senior) were added to each sample data for distribution analysis. To even further my tests, an ANOVA test was run for the first three hypotheses along with a t-test for comparison. For my fourth hypothesis, a Chi Square test was used along with a distribution table. Each analysis had a significance level of 0.05 and an N value of 20.

Conclusion:

All four figures analyzed each of my hypotheses. Unfortunately, none of these tests proved the hypothesis to be true or untrue, the p-values were not significant. However, the means of each showed that seniors had a higher percentage of taking shots and a higher percentage of goals scored. Freshman had a higher mean of games started. Seniors were shown to be on the deans list more than freshman.

References:
http://www.eccsports.org/sports/wlax/2013-14/players?sort=p&view=&pos=k&r=0
-JMP Software